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SEMCO pioneers indoor environmentalism

By B.C. JONES
Special to the Tribune

Below the crest of a wooded hillside in a remote corner of the East Pointe subdivision stands the home office of privately held SEMCO — one of Columbia's least-known business success stories.

Focusing on air-quality products for large buildings, SEMCO had sales of more than \$40 million last year and projects an increase to \$100 million within five years.

The company is pinning its hopes on a new product it has started marketing — a revolutionary, intelligent ventilation system called Pinnacle that provides improved, comprehensive air treatments.

The breakthrough has many implications. Interior air quality affects public health, workplace efficiency and energy usage. The U.S. Department of Energy has concluded that better indoor environments can reduce respiratory diseases, saving business \$6 billion to \$19 billion annually through lower absenteeism and higher productivity.

The energy crisis of the '70s led to tighter, more energy-efficient structures. An unintended consequence, however, was that pollutants and germs then remained in the buildings, prompting professional associations and building codes to mandate minimum standards for outside-air intake.

But outside air may contain pollutants and pollen. Moreover, outside air with high humidity spawns molds and fungi that produce odors and respiratory ailments. Excess humidity makes schoolchildren, office non-smokers and hospital staff unproductive and uncomfortable. But correcting the condition with dehumidifiers and air conditioners raises energy costs dramatically.

SEMCO believes its Pinnacle system addresses the dilemma.

John Fischer of Atlanta, a consultant who developed Pinnacle for SEMCO, explained the relation between temperature and humidity in maintaining a healthful living space.

"When people lose control of the humidity, they tend to lower room temperature," he



SEMCO executives Norm Ballargeon, left, and Bill Thurman stand outside company's the headquarters on East Pointe Drive. Don Shrubshell photo

said. "They do fine with a 72-degree temperature when the relative humidity is 50 percent. If the humidity goes to 70 percent, they'll need a temperature of 68. That additional cooling uses a lot of energy"

The Pinnacle system simultaneously controls ventilation, temperature and humidity to produce desired air standards. It's a rectangular unit connected to ducts that channel both internal and outside air through two large desiccant wheels.

One wheel adjusts the humidity by passing air through a honeycombed device that has microscopic dents large enough to collect water molecules but too small to attract pollutant molecules, which are then eliminated.

Another wheel recycles some 80 percent of the energy used for cooling or heating. Fischer claims that Pinnacle lowers the cost for processing outside air by 80 percent compared with conventional heating, ventilating and air-conditioning equipment.

Impressed by SEMCO's technology the U.S. Department of Energy has funded about half

of the company's \$1 million in energy-conservation research during the past four years.

By recovering energy, SEMCO now heats its 27,500-square-foot, two-story home office — with large exterior window space — with a furnace the size of a home-heating unit. Much of the building's heat is generated by human body warmth and computer operations.

These achievements are even more remarkable because SEMCO has been producing desiccant wheels, in addition to high-tech air-quality and energy-conservation equipment, for less than 15 years.

Starting in a garage with a handful of employees in 1963, SEMCO soon opened a Salisbury shop producing spiral metal ducts. Its name is an acronym for Salisbury Engineering Manufacturing Co. In 1973, the company moved its home office to Columbia. It opened a second plant in Roanoke, Va., a year later.

In 1978, the company added acoustical sound attenuators and acoustical panels to its product



Don Shrubshell photo

SEMCO lab technician Ruben Lozano, left, and lab supervisor Steve Glen prepare a two-wheel Pinnacle test unit at the company's lab on Paris Road. The intelligent ventilation system recaptures, reclaims and recovers heat and energy in the winter for buildings

line, said Bill Thurman, SEMCO's president.

Thurman joined the firm as a draftsman in 1974 to make some money before resuming his architectural studies at the University of Missouri-Columbia. Engrossed in SEMCO's challenges, he stayed on.

Today, SEMCO's air quality equipment is sold widely in Southeast Asia, Saudi Arabia, Europe and Canada. Its sales are handled by about 255 manufacturers' representatives offices, and direct sales are made to The Trane Co. and chains of restaurants, theaters and hotels. SEMCO also does some retail business.

"We have 350 employees, with 90 working in Columbia," Thurman said. "Recently, we've been opening a plant a year."

SEMCO is building a second plant in Morrilton, Ark. Besides the long-term facilities in Salisbury and Roanoke, it has plants in Chillicothe and Riviera Beach, Fla.

During the '90s, SEMCO had major, test-validated successes with its interior air-quality units based on desiccant wheels. The devices largely eliminated tobacco smoke, odors and volatile organic compounds from indoor environments.

For less initial cost than conventional systems, SEMCO installed the air-quality controls for Georgia Institute of Technology's Undergraduate Student Center. Initially used by athletes in the 1996 Olympics, the center realized annual energy savings of \$67,240.

For a research facility at Johns Hopkins School of Medicine using the full range of laboratory chemicals, SEMCO achieved excellent air quality for \$1.1 million less initial cost and an annual \$645,000 energy savings.

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Last July, SEMCO opened a Columbia testing lab in the former Missouri Book Services building, 1711 Paris Road. With the mezzanine reserved for storage, a portion of the 35,000-square-foot main floor is reserved for future testing by the duct and acoustical divisions. The focus, so far, has been on desiccant wheels and a Pinnacle unit currently being tested there.

Steve Glen, research and development supervisor who runs the lab, called Pinnacle the "most exciting" industry product he has ever seen. "John Fischer took our existing technol-



SEMCO's Total Energy Recovery Wheel. This desiccant wheel extracts temperature and moisture from one airstream and transfers it to another.

ogy and made something revolutionary” he said. “I wish I’d thought of it.”

Because consultant Fischer, who functions as SEMCO’s director of research, lives in Atlanta, it has been convenient for Georgia Tech to test its products.

A Pinnacle prototype is currently being field-tested in the Augusta College library in Augusta, Ga., with its performance monitored by computer.

Pinnacle was formally introduced by 10 SEMCO representatives at the International Air Conditioning, Heating, Refrigerating Exposition in Dallas this week. Some 1,500 companies showed their wares to perhaps 25,000 visitors from all over the world.

Because it was too cumbersome to erect equipment to produce different air conditions and demonstrate Pinnacle’s response, SEMCO held a press conference and hosted a hospitality event. About 60 trade publication editors and engineers attended.

Charlie Hoyle, national sales manager for desiccant wheel products, said that it will take some time to measure the exposition’s effect on Pinnacle sales. “The media reaction will be important,” he said. “Trade publications will cover Pinnacle, and we’ve invited national news coverage. Anyway, we’ve already sold some Pinnacles through manufacturers’ representatives and word-of-mouth.

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Located close to the intersection of Stadi-



Don Shrubshell photo

SEMCO uses its own climate-control products at its home office in the East Pointe subdivision.

um Boulevard and Highway 63 South, SEMCO’s home office at 1800 East Pointe Drive does not intrude on the skyline; the light poles in the parking area have been lowered in deference to nearby residences. From his office at the \$2.1 million building, which SEMCO occupied in 1992, Thurman has a good view of the large oak trees that were carefully preserved during construction.

“We wanted to build an environmental showplace for this community and for the markets we serve,” he said. “This building impresses our customers and the manufacturers’

representatives we bring to Columbia for training.”

Thurman is proud of the fact that SEMCO computerized its operations early-on and writes its own software — and that all product categories are thriving. “We’re an industry leader in every market we serve,” he said.

Yet the bottom line for SEMCO is a team concept. Employee morale is enhanced by the preference for promoting from within.

“You can have the best technology in the world and still fall short,” Thurman said. “SEMCO’s fine reputation is due to our people.”



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